

prices of commodities will exhibit clearly the divergence of the two methods, and bring into exercise the perception and decision of common sense. The paramount supremacy of cultivated common sense in the interpretation of social, economic, and financial questions is too constantly a neglected guide ; and many of the wild and obscuring conclusions in thought and action — based upon imposing masses of figures and tabulations which simply confuse the feeling of proportion and reality—would be truly perceived in their nonsense by the light of this ordinary sense. In the calculations incident to customary affairs of business the geometric mean varies so slightly from the arithmetic mean that the latter, with its simplicity and ease of application, may be adopted both on the ground of economy of labour and adequacy of result. But the case is different when the alterations of prices extend over a wide range of ascent and fall. Take one article whose price (100) at a stated date has in a subsequent year of inquiry increased by 100 per cent, so that its value is now expressed by 200. Assume that another commodity has fallen in value by 50 per cent, so that its original price (100) is now represented by 50. The arithmetic mean of the original

values is  $100 + 50 = 150$  ; that of the subsequent values

$\sqrt{200 \times 50} = 125$ , or the average advance in price of the set is

25 per cent. Common sense asserts at once that this result does not furnish an accurate exhibition of fact. A rise of 100 per cent and a concurrent fall of 50 per cent would obviously indicate that the average would not be changed. We summon into evidence the geometric mean; and we perceive that the mean at the origin was  $\sqrt{100 \times 100} = 100$ , while the mean at the later date was  $\sqrt{200 \times 50} = \sqrt{10000} = 100$ , or that the level of average price (in consonance with the decision of common sense) has continued constant. Hence, in these statistical inquiries into the altered values of commodities the geometric mean furnishes the criterion in agreement

with its use in questions relating to population and other social phenomena —though, perhaps, without the same completeness of justification.